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Natural Resources Conservation Service

INTERNATIONAL PROGRAMS DIVISION

IPD Newsletter

July—December 2021

COVER PHOTO: *Secretary Vilsack and Chief Cosby meets Surangel Whipps, Jr. President of the Republic of Palau*

Courtesy of Tom Witham

SEE ENTRY ON PAGE 6.

The IPD Newsletter is a biannual publication produced by the International Programs Division of the Natural Resources Conservation Service (NRCS).

The document provides a six-month overview of NRCS participation in international activities, which included providing technical assistance and exchanging scientific and technical information.

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Activities

Argentina

Virtual Listening Sessions.—The USDA Natural Resources Conservation Service (NRCS) was invited to and participated in a virtual listening session sponsored by the Soil Survey and Land Evaluation Network of the "Instituto Nacional de Tecnología Agropecuaria" (INTA) of the Republic of Argentina on July 1. The session discussed the use of soil maps and land evaluation. USDA–NRCS representatives shared information on "Cacao for Peace," a recently completed soil survey project in Colombia. The listening session was attended by 80 participants from Argentina, Mexico, Peru, and United States. USDA–NRCS was represented by Janella Cruz, soil conservationist; Charles Lagoueyte, MLRA soil survey leader; Manuel Matos, State soil scientist; Charles Kome, international projects coordinator; and Luis Hernandez, soil survey regional director. Mr. Hernandez provided an overview on how USDA–NRCS conducts international soil survey activities. Janella Cruz and Charles Lagoueyte made a presentation on soil survey methodology and the results of a recently completed soil survey project in Santa Marta, Colombia. The presentation was followed by a session of questions and answers. The entire listening session was recorded and is available at: Aspectos utilitarios de los mapas de suelos y la evaluación de tierras: "Cacao por la paz" - YouTube.
INTA held an additional series of virtual listening sessions August 9 through 13. At the listening sessions, exchange of ideas was promoted. Topics included fundamental concepts of soil taxonomy, requirements of soil diagnostic horizons, and classification of soils using the "Keys to Soil Taxonomy." These topics can enhance soil resource inventories and research activities, leading to development of more precise soil information. Such information informs conservationists, land users, policy makers, and the public of the role of soils in food and fiber production, infrastructure development, and soil ecosystem services.
Presenters at the listening sessions discussed a different topic every day. Luis Hernandez, NRCS soil survey regional director, shared information on the USA National Cooperative Soil Survey Program. Other NRCS attendees included Samuel Rios, MLRA survey office leader; Steve Monteith, supervisor at the Kellogg Soil Survey Laboratory; Edwin Muñiz, State soil scientist; Manuel Matos, State soil scientist; Geraldine Vega, MLRA soil scientist; Milton Vega, MLRA soil scientist; Charles Lagoueyte, MLRA survey office leader; Martin Figueroa, MLRA soil scientist; and Joxelle Velazquez, soil data quality specialist.
The sessions included participants from Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Spain, Guatemala, Mexico, Paraguay, Peru, Venezuela, and the USA. By August, roughly 4,000 people had accessed the sessions.
Links to the listening sessions on YouTube follow.
Day 1 https://www.youtube.com/watch?app=desktop&v=QfRn6yv1bzQ

Day 2 https://www.youtube.com/watch?app=desktop&v=hdtS9hoFdRY

Day 3 https://www.youtube.com/watch?app=desktop&v=pHK94Tj_ARY

Day 4 https://www.youtube.com/watch?

app=desktop&v=whwoSWBMjR8

Day 5 https://www.youtube.com/watch?app=desktop&v=XJ8P19jCxZ4

China

Skye Wills, national leader for soil science research, provided a virtual presentation at the International Forum on Black Soils Conservation and Utilization on July 23. The conference was hosted by the Ministry of Agriculture and Rural Affairs of the People's Republic of China. This forum was the world's first high-level, broadly represented event on black soils. High level government officials and soil experts of relevant countries shared information on new developments and trends in the conservation and use of black soils. Discussions included the impact of biodiversity and climate change on soil health and the promotion of international cooperation.

Iraq

Roeland de Wilde, Head of Humanitarian Unit for the International Organization for Migration (IOM) in the Republic of Iraq, approached NRCS to learn how the agency's techniques can help to assist with disaster risk while contributing to the improvement of the livelihoods for people living in Iraqi Kurdistan. John Fripp, civil engineer; Brent Draper, state irrigation engineer; and Bernadette Luncsford, supervisory district conservationist provided their perspective to the conversation. The initial discussion focused on methods to implement regenerative agricultural practices that can mitigate the effects of flash flooding and on improving irrigation practices, infrastructure, and rangeland management. Following this discussion, NRCS provided reports of past projects that may contribute to future program development for IOM.

Pakistan

In July 2021, NRCS completed the final phase of a multiyear effort in Pakistan. Since 2010, through a series of interagency agreements, NRCS in collaboration with the Foreign Agricultural Service (FAS) provided technical expertise in watershed rehabilitation and soil conservation. Over a 10-year period, NRCS was at the core of the USDA program on watershed rehabilitation, soil health, and irrigation improvement in the Islamic Republic of Pakistan. NRCS provided expert technical advice and consultation, training, and leadership. These services exemplified the technical excellence of USDA in the capture, delivery, and management of water for agriculture and the improvement of soil health, which is central to improving soil fertility.
These efforts resulted in six projects and several associated activities to improve resilience to climate change. They were initiated in Pakistan by USDA with support from the U.S. Agency for International Development (USAID).
USDA worked closely with the International Center for Agricultural Research in the Dry Areas (ICARDA) and others in the demonstration and dissemination of multiple technologies and best practices. Examples include solar-powered pumping systems, soil health testing kits, zero-till for dryland wheat, wheat into rice, and laser assisted land leveling.

Antarctica

NRCS established nine soil climate stations in Antarctica from 1999 through 2011 and has been monitoring the soil climate ever since. Visits are made to collect data and conduct maintenance every year during the austral summer. Four of the stations are in the Dry Valleys, and four are along the coast. The ninth station is on Mt. Fleming near the polar plateau. Each climate station measures atmospheric parameters, such as air temperature, relative humidity, wind speed and direction, and solar radiation. They also measure soil parameters, including soil moisture and temperature, from the active (seasonally thawed) layer into the permafrost. Measurements are recorded on an hourly basis. The soils at each climate station were described and sampled and then characterized at the Kellogg Soil Survey Laboratory. The research conducted by this project helps determine the effects of climate change on the active soil layer and upper permafrost. The data provide baseline information needed to understand coastal ecosystems and active-layer dynamics along the Victoria Land coastline in the McMurdo Sound region. The long-term record is useful for defining normal conditions, departures from normal, trends, and cyclic events. Data are also used in the development of a robust classification of spatial environmental domains for this same region. In the United States, information resulting from the study helps NRCS in understanding cold and dry soils and their monitoring and in developing strategies for coping with global climate change.
At the soil climate stations, mean annual air temperatures range from 1.4 °F to -11.2 °F, and mean annual soil temperatures range from 5.7 °F to -10.3 °F. The average maximum thaw depth ranges from 5.5 cm at Mt. Fleming to greater than 90 cm at a protected coastal site. Mean water contents range from 0.013 $m^3\ m^{-3}$ near the surface in the Dry Valleys to 0.33 $m^3\ m^{-3}$ near the ice-cemented layer at a coastal site. The soil climate data and

metadata, such as soil descriptions, soil characterization data, and station records, are available to the public and cooperating scientists at Antarctica Soil Climate Stations, which is a webpage of the NRCS National Soil Survey Center. Climate data can be downloaded by year, or data can be viewed graphically for each sensor by year.

United Nations

The Ninth Session of the Global Soil Partnership (GSP) Plenary Assembly of the Food and Agriculture Organization of the United Nations was held in a virtual format September 8 to 10, 2021. USDA was represented by Randy Riddle, soil survey office leader; Luis Hernandez, soil survey regional director; and Dr. David Lindbo, Soil and Plant Science Division director. The session was attended by approximately 300 participants from around the world. One of the major discussion topics was current and future GSP activities related to soil organic carbon and soil health. At the assembly, the GSP announced the release of "Global Soil Organic Carbon Sequestration Potential Map" and "Recarbonizing Global Soils—A Technical Manual of Recommended Management Practices." The technical manual is available at Soil Organic Carbon Manual | Global Soil Partnership | Food and Agriculture Organization of the United Nations (fao.org).

The Global Symposium on Salt-affected Soils (GSAS21) was held online from October 20 to 22, 2021 to "Halt soil salinization, boost soil productivity".

This science-policy meeting was organized by the Food and Agriculture Organization of the United Nations, its Global Soil Partnership (GSP), the Intergovernmental Technical Panel on Soils (ITPS), together with the Science Policy Interface of United Nations Convention to Combat Desertification (SPI-UNCCD), the Government of the Republic of Uzbekistan, the International Union of Soil Sciences (IUSS), the International Center on Biosaline Agriculture (ICBA), the International Network of Salt-Affected Soils (INSAS), and the Global Framework on Water Scarcity in Agriculture (WASAG).

The objectives of the Symposium were to share knowledge on salinity prevention, management, and adaptation and to establish critical connections between science, practice, and policy by facilitating discussion among policy makers, food producers, scientists, and practitioners of sustainable management of salt-affected soils.

There were three main symposium themes:

• Theme 1: Assessment, mapping, and monitoring of salt-affected soils.

• Theme 2: Integrated soil-water-crop solutions in rehabilitation and management of salt-affected areas.

• Theme 3: Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices.

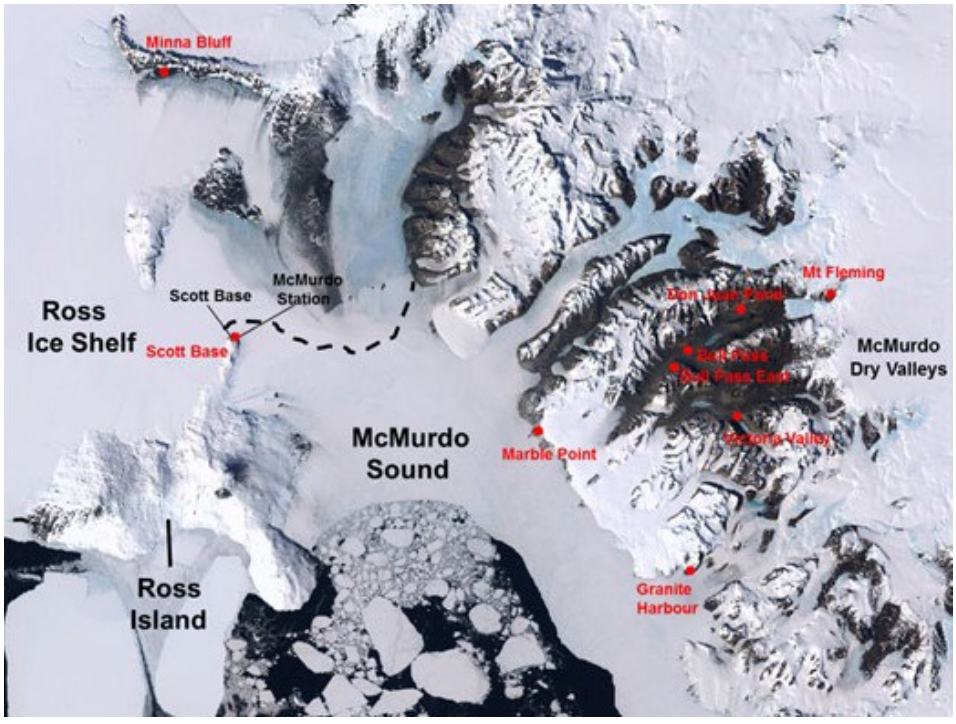
There were 5,500 participants from 185 countries demonstrating that salt-affected soils are very much a global issue.

Two oral and one poster presentations featured featuring National Soil Survey Center and other scientists are as follows:

• Mapping Salt-Affected Soils of the United States of America. Stephen Roecker, Suzann-Kienast-Brown, Chad Ferguson, Jessica Philippe, Todd Skaggs, David Lindbo, USDA-NRCS.

• Salinity management and use of state and transition models for salt-affected soils. Michael J. Kucera, USDA-NRCS.

• Methods for the analysis of salt-affected soils. Rich Ferguson,



Location of the nine soil climate stations in Antarctica

David Hoover, USDA-NRCS.

Main Web site at https://www.fao.org/events/global-symposium-on-salt-affected-soils/en

Posters can be seen at https://www.fao.org/global-soil-partnership/areas-of-work/soil-salinity/GSAS21-Poster-contest/en/

Agenda at https://www.fao.org/docs/faoeventslibraries/global-symposium-doc/agenda.pdf?sfvrsn=e1d5e83f_104

European Union

A Taste of Europe—On September 28, a USDA delegation met with the European Union delegation and E.U. Member State embassies in Washington, DC, for the Taste of Europe event. The delegation included Lillian Woods-Shawver, Director of the International Programs Division. The group represented USDA agencies that are developing a U.S.–E.U. agricultural solutions working group. They met with various E.U. Member States and discussed the importance of our shared agricultural ties and the challenges we all face in enhancing the sustainability of our food systems from farm to fork. Lillian met the Agricultural Counselor from the Kingdom of the Netherlands. She will make virtual introduction to NRCS Urban Team. The Netherlands Embassy also mentioned that they are pleased to be working with USDA related to the "Urban Greenhouse Challenge #3" with University of the District of Columbia and Wageningen University and Research.

Collaboration Platform on Agriculture—On November 3, European Union Commissioner for Agriculture Janusz Wojciechowski and Secretary of Agriculture Secretary Tom Vilsack issued a statement on a newly created a transatlantic collaboration platform on agriculture designed to take on the global challenges of sustainability and climate change. The objective of the relationship will improve information sharing to increase U.S.-E.U. agricultural cooperation to produce measurable and actionable outcomes where possible. NRCS was will contribute technical leadership in developing the 2022 work plan to implement this secretarial initiative. The press release can be found here: https://www.usda.gov/media/press-releases/2021/11/03/us-eu-launch-collaboration-platform-agriculture

Lillian Woods-Shawver (center) and Daniel Whitley, Administrator, Foreign Agricultural Service (far left) with European embassy representatives

Netherlands

NRCS partnered with the Urban Greenhouse Challenge #3 that will be implemented from November 2021 to June 2022. The Challenge is a cooperative program between the University of the District of Columbia and the Wageningen University, in the Kingdom of the Netherlands that seeks to raise the profile and potential of urban agriculture in the U.S. to inspire American and other international students to become the next generation change makers. Participating students will develop an urban farm concept that not only ensures year-round sustainable and affordable food production but also generates incomes for the residents. For more information please visit WUR Urban Greenhouse Challenge.

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On November 30 the embassy of the Kingdom of the Netherlands met with NRCS and NIFA to talk about USDA's the plans in the area of urban agriculture as well as the wider use of greenhouse technology for the production of healthy food and fruits. The embassy also provided a presentation on existing collaboration with several states as well as an update on the collaboration on the Urban Greenhouse Challenge between the University of the District of Columbia and Wageningen University.

Insular Areas

Luis Cruz-Arroyo, Director, Caribbean Area and Amy Koch, Assistant Director for Soil Science presented at the Federal Partners Communicating on Insular Areas meeting on November 23.

Federal partners communicating on the Insular Areas convenes federal officials whose work touches the U.S. territories of American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, the U.S. Virgin Islands, and the freely associated states which are the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. The purpose is to facilitate communication and information sharing among federal partners related to efforts in and about the insular areas.

Azerbaijan

Mike Strobel, Director of the National Water and Climate Center was selected by the Department of Interior as a member of the Ambassadors Water Expert Program (AWEP) in the Republic of Azerbaijan. This team will support the development of a roadmap for the implementation of a groundwater and surface water resource surveying effort and enhancing ongoing transboundary water cooperation discussions with government stakeholders from the Ministry of Ecology and Natural Resources. Program outcome will follow as reports come in.

Palau

Paul Lake, NRCS Retiree, was selected as an Earth Team Volunteer in Palau. He will serve for several months where he will provide technical expertise on on-going projects for local partner organizations.

International Visitors

Ukraine

Roman Leshchenko, Ukrainian Minister of Agrarian Policy and Food, met with the USDA Foreign Agricultural Service and Lillian Woods Shawver, director of the NRCS International Programs Division, on August 11. The minister was interested in learning about U.S. soil conservation and water management practices and how they could be implemented in the Ukraine's agricultural sector to promote sustainability. Lillian provided a background on NRCS's approach to irrigation and water conservation programs, policies, and practices.

Palau

Surangel Whipps Jr., President of the Republic of Palau and his delegation met with Chief Crosby on October 28. President Whipps has interest in re-establishing links with USDA and discussed issues including: technical assistance for rural farmers, drought, re-forestry, energy, and rural infrastructure. He also brought up the country's need for grants and loans to upgrade telecommunications networks, provide utilities and affordable housing.

Special emphasis was focused on forgiving a previous USDA Rural Utilities Service Loan where the principal and some interest has already been paid, the remaining interest presents a significant debt burden for the country's economy which has been significantly and negatively impacted by both the COVID pandemic and Typhoon Surigae.

Uzbekistan

Brent Draper, NRCS State irrigation engineer, along with personnel from the U.S. Department of State and the Department of Interior's Bureau of Reclamations met with officials from the Republic of Uzbekistan. The first of several meetings was held on August 20 to develop a series of trainings to address such issues as drought and aging infrastructure.

Near East & North Africa

On December 2, the International Visitor Leadership Program by the U.S. Department of State arranged for a group of 17 delegates from the Kingdom of Bahrain, Arab Republic of Egypt, State of Israel, Hashemite Kingdom of Jordan, Kingdom of Morocco, Palestinian Territories, and the United Arab Emirates.

Provide an overview of how the U.S. manages freshwater supplies for agriculture, domestic and industrial uses with a focus on conservation measures.

Explore the increasing role and impact of climate change on U.S. efforts to protect the environment and manages its water resources, including best practices for environmental monitoring, research and assessment and policy formulation.
Assess U.S. transboundary water management programs and discuss cooperative strategies to establish regional and international dialogues on shared resource conflicts and concerns.

Explore perspectives for sustainability and remediation, and solutions for pollution and contamination of water through agricultural and aquaculture activities, including waste-water treatment.

Examine innovative scientific and technical strategies for assessing, monitoring, and conserving water resources.

Embassy Science Fellowship Updates

Slovakia

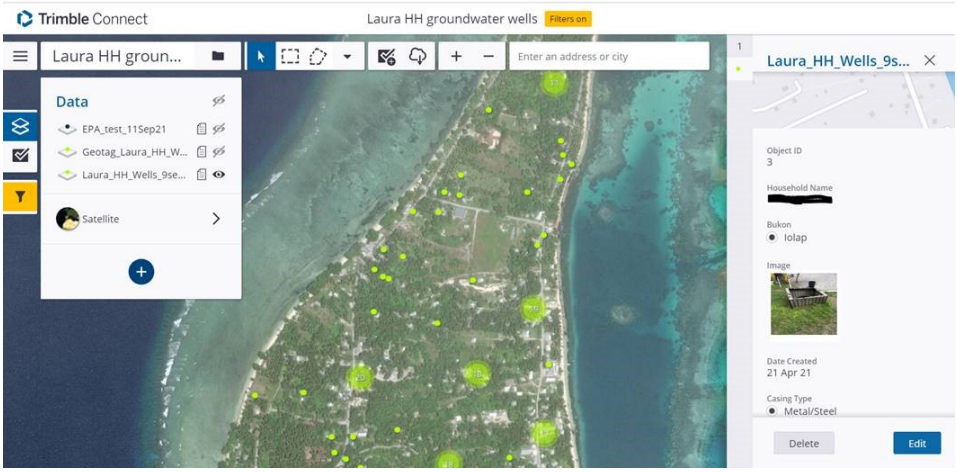
Dr. Hong Wang, civil engineer, was selected by the U.S. Embassy to the Slovak Republic for the Embassy Science Fellows Program 2021. She is supporting the Slovakian Ministry of Environment's efforts to assess, design, and implement climate change mitigation, including adoption of reforms to increase the safety of water infrastructure threatened by climate change. Solutions will be designed based on U.S. best practices. Dr. Wang is helping increase the technical capacity of Slovak water scientists in many areas, including the simulation of precipitation runoff models, the simulation of flows, the transformation of flows in retention areas of reservoirs and polders, the simulation of dam failure, and increasing the capacity of safety falls and discharges. The program began in October 2021.

Marshall Islands

In 2019, Brian Baskerville, geographer/Geographic Information Systems (GIS) specialist, was selected as an Embassy Science Fellow to implement his research in the Republic of the Marshall Islands (RMI). His fellowship was designed to consist of 46 days and include two separate field visits to the country. It was, however, ended early due to COVID pandemic travel restrictions.
Despite the pandemic, Brian continued his project and has been building up databases and preparing training documents. He has remained in contact with his Marshallese partners via email and Skype. After much trial and error, they have successfully published a new mobile data platform. The team mapped hundreds of households in the community of Laura to track and monitor a variety of groundwater data and infrastructure. The data is stored in a secure cloud database maintained by Trimble and are accessible for editing and updating by mobile app collectors in the field. The platform greatly increased collaboration. Brian can now access the map and database from his duty station in Nebraska for maintenance and development. The Marshallese partners can download data for mapping, analysis, reporting, and other needs.
Brian looks forward to returning to the Marshall Islands to complete this project once travel resumes.

Kuwait

Mustapha Abouali, assistant state conservationist for programs, will participate on a team led by the USDA Forest Service to work with the U.S. Embassy in the State of Kuwait for the Embassy Science Fellows Program 2021. The team will assist with Kuwait's efforts to prevent and remedy soil degradation and assist in developing a strategy for conserving desert terrain. These efforts will advance Kuwait's nationally determined contributions under the U.N. Framework Convention on Climate Change. They will also promote U.S. Mission Kuwait's environmental goals of combatting climate change and air pollution as described in the Integrated Country Strategy. The program is currently being developed.



Screen shot of Trimble mapping tool